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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,314	02/01/2005	Gunter Schulze	13953	7658

7590 10/04/2006
Orum & Roth
53 West Jackson Blvd
Suite 1616
Chicago, IL 60604

EXAMINER

TRIEU, VAN THANH

ART UNIT PAPER NUMBER

2612

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	<p>Application No.</p> <p align="center">10/523,314</p>	<p>Applicant(s)</p> <p align="center">SCHULZE ET AL</p>	
	<p>Examiner</p> <p align="center">Van T. Trieu</p>	<p>Art Unit</p> <p align="center">2612</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 01 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/1/05</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “wheel electronics”; “pressure sensor”; “RF transmitter”; “first receiver”; “second receiver”; “the transmitters being disposed, respectively, individually near each running wheel”; “a device for signaling to the driver information relating to the pressure or change of pressure” and “the amplifier output being coupled back to the amplifier input” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheets should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the

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examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-7, 9-15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Starkey et al** [US 6,400,261] in view of **Shimura** [US 6,791,457]. Regarding claim 1, the claimed a system for monitoring and wireless signaling of a pressure or a change of pressure in pneumatic tires on vehicles, comprising: wheel electronics that are disposed inside the pneumatic tires (the electronic tag 10 is disposed in the pneumatic tire 100, see Fig. 2); and are provided with a battery as a

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power source, which reads upon the DC power signal B+, see Fig. 1, col. 6, lines 30-34, with the electronics comprising a pressure sensor for measuring the pressure or the change of pressure (the pressure sensor 14, see Fig. 1, col. 5, lines 20-28), with a RF-transmitter for transmitting a signal derived from the signal of the pressure sensor (the transponder 12 including a transmitter circuit XMTR 62, see Fig. 1, col. 6, lines 27-30), and with a first receiver for receiving wireless interrogation signals and/or control signals (the transponder 12 including an antenna 44 for receiving RF interrogation signal 46 from the remote transceiver 50, see Figs. 1-3, col. 6, lines 28-43), a second receiver which is arranged in or on the vehicle and which receives the signal derived from the signal of the pressure sensor (the transceiver 50 including receiver antenna 176a1 for receiving monitored pressure. The receiver antenna 176a1 is linked to a portable PC 300 having a display 306 to display tire pressure value, see Figs. 3 and 6-10, col. 10, lines 61-67, col. 11, lines 1-23, col. 13, lines 56-67, col. 14, lines 1-21, col. 17, lines 27-67, col. 18, lines 1-10 and col. 23, lines 25-43); and a device for signaling to the driver information relating to the pressure or change of pressure (the display 306, see Fig. 3, col. 23, lines 25-43); and transmitters for emitting interrogation signals and/or control signals, the transmitters being disposed, respectively, individually near each running wheel having a transmission frequency of less than 1 MHz (the transmitting antennas 175a and 175b operates to transmit interrogation signals at a frequency of substantially 125 KHz to the tags 10, see Fig. 3, col. 10, lines 34-60); but **Starkey et al** fails to disclose the transmitter for emitting interrogation and/or control signals comprising an oscillating circuit comprising a radiator and an amplifier having an amplifier input and an

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amplifier output, the amplifier output being coupled back to the amplifier input.

However, **Starkey et al** teaches that the transceiver 50 includes a first and third micro-controller circuits 180a1, 180b1, respectively includes oscillator circuits 192a1, 192b, 125 KHz transmitter signal generator circuits 196a1, 196b1 for output signals to respective antenna driver circuits 182a, 182b, see Fig. 6, col. 15, lines 37-54. **Shimura** suggests that a transponder 100 with a pressure sensor circuit 110 is mounted in a vehicle tire for monitoring the tire pressure values. An interrogator 200 in the vehicle includes a data transmission-reception unit 210 and a display unit 250. The data transmission-reception unit 210 includes an outgoing unit 216 with a modulation circuit 216a, an oscillation circuit 216b and amplifier circuit 216c for sending RF signals to a plurality antennas 201 and feedback to the central processing unit CPU 215 and to the amplifier 216c, see Figs. 1, 7, 8, 12 and 13, col. 5, lines 1-21, col. 8, lines 5-49 and col. 11, lines 39-58. Therefore, an artisan would implement the amplifier of **Shimura** to the antenna driver circuit of **Starkey** for amplifying the RF signals to be transmitted since the amplifiers are designed in most of the transmitting/receiving circuits for providing a greater signal in order to increase signal power and strength preventing from losing signals.

Regarding claim 2, the claimed oscillating circuit further comprises a comparator, which transforms a voltage applied to its input, which varies over time, to a square-wave voltage, which reads upon the square signals 206a1 and/or 206b1, see Fig. 6, col. 16, lines 1-18).

Regarding claim 3, the claimed oscillating circuit is a series-resonant circuit (see Fig. 6 of **Starkey et al** and Figs. 8, 13 of **Shimura**).

Regarding claim 4, the claimed radiator is arranged in the wheel case of the vehicle (the antenna 44, see Figs. 1 and 2).

Regarding claim 5, the claimed radiator is a ferrite rod antenna (the ferrite rod transmitter antenna 175a, see Figs. 3 and 4, col. 10, lines 53-58).

Regarding claim 6, the oscillating circuit further comprises an active resistance to which the radiator provides the predominant contribution, which reads upon each of the transmitter antenna driver circuits 182a and 182b comprises an electrical bridge type circuit that is electrically connected to a different selected transmitter antenna, see Fig. 6, col. 13, lines 18-55.

Regarding claim 7, **Starkey et al** fails to disclose the current meter for measuring the current flowing through the radiator and for supplying measured values to a logic circuit. However, **Starkey et al** teaches that the power supply 500 includes a 5VDC outlet terminal 510, 12 VDC outlet terminal 508 and 24 VDC outlet terminal 506 for powering the transmitter antenna driver circuits 182a, 182b, receiver circuits 186a, 186b, 186c and 186d, and microcontroller circuits 180a, 180b, 180c and 180d, see Figs. 3 and 6,

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col. 24, lines 5-22. Therefore, an artisan would recognize that the power supply is functionally equivalent to provide a precise amount of voltage direct current to their respective circuitries for preventing damage to the circuits.

Regarding claim 9, the claimed transmission frequency of the transmitter for emitting interrogation and/or control signals is 50 to 300 kHz (62.5 KHz and/or 125 KHz transmission, see Fig. 8, col. 10, lines 33-66).

Regarding claim 10, the transmission frequency of the transmitter for emitting interrogation and/or control signals is 70 to 150 kHz (62.5 KHz and/or 125 KHz transmission, see Fig. 8, col. 10, lines 33-66).

Regarding claim 11, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** in respect to claims 2 and 3 above.

Regarding claim 12, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** in respect to claims 1 and 2 above.

Regarding claim 13, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** in respect to claims 2 and 5 above.

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Regarding claim 14, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** in respect to claims 2 and 6 above.

Regarding claim 15, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** in respect to claims 2 and 7 above.

Regarding claim 18, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** in respect to claims 2 and 9 above.

3. Claims 8, 16, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Starkey et al** and **Shimura** and further in view of **Hochstein** [US 4,450,431]

Regarding claim 8, **Starkey et al** fails to disclose the oscillating circuit has a Q value of at least 20. However, **Starkey et al** teaches that the transceiver 50 includes a first and third micro-controller circuits 180a1, 180b1, respectively includes oscillator circuits 192a1, 192b, 125 KHz transmitter signal generator circuits 196a1, 196b1 for output signals to respective antenna driver circuits 182a, 182b and to the ferrite rod antennas 175a, 175b to be tuned to a frequency of substantially 125 KHz, see Fig. 6, col. 15, lines 37-54 and col. 10, lines 53-60. **Hochstein** suggests that a tire pressure monitoring system comprising an interrogator/receiver to receive harmonic energy by an antenna coil 24 is optimized by using a high Q ferrite loaded coil and resonating capacitor, sharply tuned to the desired harmonic frequency. The ferrite antenna coil is properly

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tapped or impedance matched to the low impedance transmission line, which conducts the received signal an appropriate tuned receiver 26, see Figs. 1-4, col. 7, lines 6-35. Therefore, an artisan would implement the high Q ferrite loaded coil and resonant capacitor of Hochstein to the oscillator circuit and ferrite rod antenna of Starkey et al for optimizing the frequency to a desired transmission frequency for minimize of loosing RF signals.

Regarding claim 16, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** and **Hochstein** in respect to claims 2 and 8 above.

Regarding claim 17, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** and **Hochstein** in respect to claims 7 and 8 above.

Regarding claim 19, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** and **Hochstein** in respect to claims 1-3and 7-9 above.

Regarding claim 20, all the claimed subject matters are discussed between **Starkey et al** and **Shimura** and **Hochstein** in respect to claims 10 and 19 above.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Konchin et al discloses a tire pressure monitoring system includes an active sensor, a receiver and an indicator. The receiver is positioned within proximity to the sensor and operable to generate a signal indicative of the pressure includes an inductor and an amplifier having a feedback path. [US 6,756,892]

Cantu et al discloses a system for checking the tire pressure including a first device for measuring the tire pressure associated with at least one wheel, and a second device for transmitting a signal indicating a value measured by the first device.[US 6,829,926]

Letkomiller et al discloses a transponder and interrogator for monitoring temperature and pressure of a vehicle tire. [US 6,369,712]

Brown discloses a monitoring pneumatic tire conditions comprising transponders/tags located inside the vehicle tires and an interrogator for receiving measured tire pressure values to be displayed on a display. [US 6,591,671]

5. Any inquiry concerning this communication or earlier communications from examiner should be directed to primary examiner **Van Trieu** whose telephone number is (571) 272-2972. The examiner can normally be reached on Mon-Fri from 7:00 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mr. Mike Horabik** can be reached on (571) 272-3068.

A handwritten signature in black ink, appearing to read 'Van Trieu', with a long horizontal flourish extending to the right.

Van Trieu
Primary Examiner
Date: 9/26/06